Trend Study 17-51-05

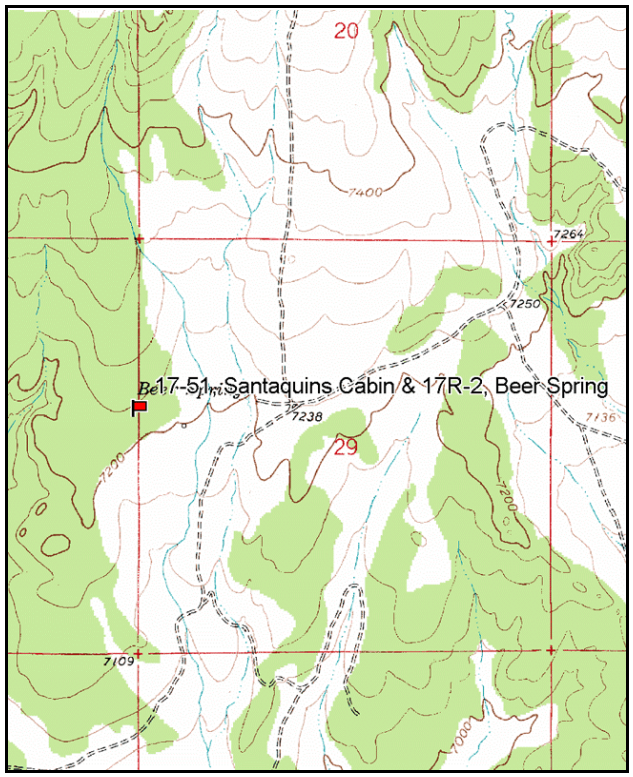
Study site name: Santaquins Cabin . Vegetation type: Chained, Seeded P-J .

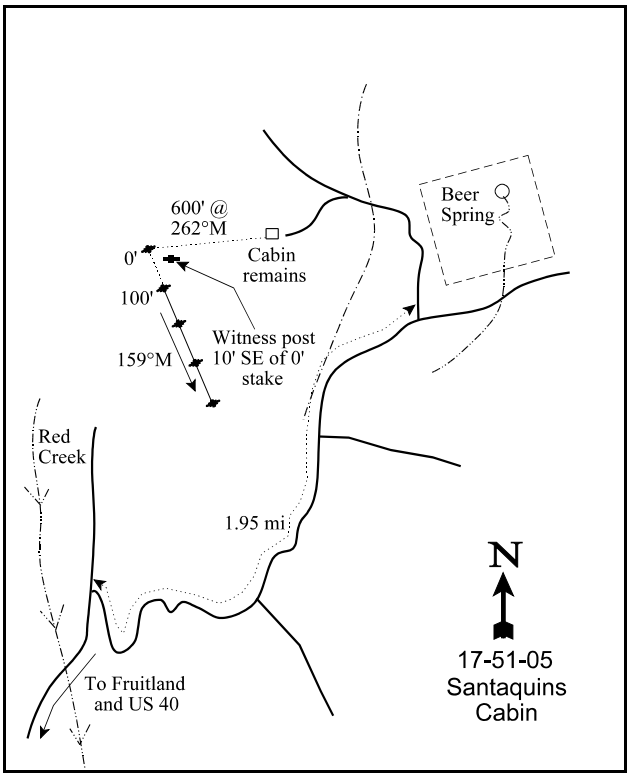
Compass bearing: frequency baseline 159 degrees magnetic.

Frequency belt placement: line 1 (19 & 94ft), line 2 (29ft), line 3 (57ft), line 4 (71ft).

LOCATION DESCRIPTION

From US 40 in Fruitland, travel north up the 45000 S. 1.8 miles to a 3-way fork. Take the middle fork and go 2.5 miles. After crossing Red Creek, turn right onto a dirt road. Go northeast up this road for 1.95 miles, keeping left at two major forks. At Beer Spring, turn left and go along the west side of the fenced spring to a wide, shallow wash. Cross the wash, then bear left onto a faint road. Follow it for about 100 yards to the remains of Santaquins cabin. From the cabin walk west at 262°M for 600 feet, following the old line intercept study, to the 4th stake. From the 4th line-intercept stake, walk 11 paces south to the start of the baseline. The 0-foot baseline stake is marked with red browse tag #7022. There is a witness post southeast of the 0' stake. The frequency baseline runs at a bearing of 159°M.





Map Name: Tabby Mountain

Diagrammatic Sketch

Township 2S ,Range 8W ,Section 30

GPS: NAD 27, UTM 12T 4458485 N, 515235 E

DISCUSSION

Santaquin's Cabin - Trend Study No. 17-51

This trend study is on winter range located near Santaquin's Cabin. The area is owned by the Utah Division of Wildlife Resources as part of the Tabby Mountain WMA. The study is placed on a chained and seeded pinyon-juniper area west of Beer Spring. The last 200 feet of the baseline transect was treated (a disking) again previous to the 2000 reading and a roving site (Beer Spring 17R-2) was established on the new treatment. The elevation is 7,200 feet and the slope is 5% with a slight southeast aspect. This area is used heavily by wintering big game, especially deer. Cattle also use the area. Pellet group data from 2000 were estimated at 139 deer, 4 elk, and 9 cow days use/acre (343 ddu/ha, 10 edu/ha and 22 cdu/ha). The 2005 pellet group data estimates were 60 deer, 52 elk, and 6 cow days use/acre (149 ddu/ha, 127 edu/ha, and 14 cdu/ha).

Soils are fairly deep and fine textured with small amounts of rock on the surface and within the profile. The effective rooting depth is estimated at just over 11 inches due to a compacted horizon, which starts about 8 inches below the surface. This does not appear to be a very restrictive rooting barrier however. Shrub interspaces generally have an effective rooting depth of 8 to 11 inches, while soil near the base of shrubs is normally 13 to 17 inches in depth. The soil texture is a sandy clay loam with a slightly alkaline soil reaction (pH of 7.7). Phosphorus is limited at just 3.3 ppm and values less than 6 ppm may limit normal plant growth and development in wildland soils (Tiedemann and Lopez 2004). There is some localized soil movement on bare areas but for the most part, erosion is minimal due to the abundant chaining litter and vegetation cover. A number of small, south flowing gullies traverse the area. These have stabilized since the chaining treatment. A disking treatment was done near the trend study and the last 150 feet of the baseline was within the disked area. The erosion index measurement in 2005 rated soil erosion condition as stable.

The key browse species on the chaining is Wyoming big sagebrush. There appears to be some sagebrush which exhibit characteristics of basin big sagebrush as well as hybrids of Wyoming big sagebrush and basin big sagebrush. All sagebrush will be classified as Wyoming big sagebrush at this location. Density of sagebrush has declined since 1982. Sagebrush density in 1982 was 5,666 plants/acre, 4,399 in 1988, 3,040 in 1995, 2,320 in 2000, and 1,980 in 2005. Decadence has remained low through 2000 (8%), but increased to 23% by 2005. Utilization has been moderate with 23% of the population classified as heavily hedged in 1988, 16% in 1995 only 4% in 2000, and 32% in 2005. Individuals classified as dying increased from 2% in 1995, to 4% in 2000, to 16% in 2005. The number of young individuals in the population have remained higher than those classified as dying. Several other browse species occur, but in small numbers.

Pinyon and juniper have been increasing since the chaining. In 2000, point-center quarter data was estimated at 18 juniper trees/acre with an average diameter of 2.1 inches. Pinyon pine was estimated at 36 trees/acre with an average diameter of 1.5 inches. In 2005, juniper increased to 34 trees/acre with an average diameter of 3.7 inches. Pinyon pine were estimated at 27 trees/acre with a diameter of 2.3 inches.

The herbaceous understory is diverse with 11 perennial grass species and 32 forb species sampled between 1988 to 2005. Crested wheatgrass, thickspike wheatgrass, intermediate wheatgrass, and a sedge dominate the grass composition. Grasses and grass-likes provided 13% cover in 1995, 17% in 2000, and 16% in 2005. Forbs are diverse but they do not provide very much forage. In 1995, forbs accounted for only 4% cover, 2% in 2000, and 2% in 2005. Common forbs include: loose flower milkvetch, alfalfa, Hood's phlox, and scarlet globemallow.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable. The shrub component, especially Wyoming big sagebrush, appears to be on the increase. However, browse diversity could be better. This seems to be another of those seedings where direct seeding of desirable shrubs has largely failed. Interseeding may be a viable option. Grasses and forbs are providing needed watershed protection as well as livestock forage. The highly palatable alfalfa appears to be on the way out. Vegetation trend appears stable to improving.

1988 TREND ASSESSMENT

Veggtative cover hits were rare in 1988. Basal vegetation cover decreased from 9% to 2%. Since litter cover was constant, the percentage of bare soil exposed increased. Trend for soil is considered slightly down. The permanent photo-plots associated with the study on DWR land at Santaquin's Cabin will help to document the continued succession of this chaining. From the photos, there is an obvious increase in the size and prominence of woody species although cover is still very limited in the area. For some reason, the frequency baseline was established in an area with less sagebrush than is typical over the area as a whole. Along the baseline, sagebrush cover is 1%. On the density plots, sagebrush cover averages 17%. In 1982, a large number of seedling and young big sagebrush were counted. Total sagebrush density was 5,666 plants/acre. During the 1988 reading, no seedlings were found, but there were still a substantial number of young plants. However, the total sagebrush population was only 4,399 plants/acre with a decrease in the number of mature plants counted. Correlating with the data, photograph comparisons illustrate the increased size and degree of hedging on the sagebrush. Seven percent of the mature sagebrush were classified as heavily hedged in 1982. In 1988, 21% were in form class 3. The populations of increaser species; broom snakeweed, pricklypear, juniper and pinyon have only slightly increased. Browse trend is considered slightly down. Quadrat frequency of grasses increased slightly since 1982, while frequency of forbs declined. Overall, trend is stable for the herbaceous understory.

TREND ASSESSMENT
soil - slightly down (-1)
browse - slightly down (-1)
herbaceous understory - stable (0)

1995 TREND ASSESSMENT

Soil conditions have improved since 1988. Cover of bare ground declined from 42% to 28%, while litter cover continues to decline as chaining litter decomposes. Trend is slightly up for soil. The key browse species, Wyoming big sagebrush, has declined in overall density due to a reduction in the number of young plants in the population caused by drought conditions over the past several years. The number of shrubs displaying heavy use declined slightly, vigor improved and the number of decadent plants declined slightly from 9% to 7% of the population. Trend is considered stable at this time. Trend for the herbaceous understory is up slightly due to an increase in the sum of nested frequency of grasses which makes up 74% of the herbaceous cover. Frequency of forbs remained similar to 1988. The Desirable Components Index rated this site as excellent with a score of 70 due to moderate browse cover, moderate decadency, and good perennial grass cover.

TREND ASSESSMENT
soil - up slightly (+1)
browse - stable (0)
herbaceous understory - up slightly (+1)
winter range condition (DC Index) - excellent (70) Lower Potential scale

2000 TREND ASSESSMENT

Trend for soil is stable. Relative cover of bare ground declined slightly while litter cover increased slightly. Vegetation cover remained similar to 1995 estimates and the ratio of protective cover (vegetation, litter, cryptogams) to bare ground remained fairly stable. Trend for the key browse species, Wyoming big sagebrush, is down. Density of mature plants has declined, but this is due to the disking treatment which effected 2 of the 5 density strips. Use is mostly light to moderate, vigor good on most plants and percent decadence remains low. Young plants currently account for 19% of the population while there are a fair number of seedlings. Trend for the herbaceous understory is down. Sum of nested frequency of perennial grasses and forbs have declined with a significant decline in the nested frequency of crested wheatgrass. The Desirable Components Index rated this site as excellent with a score of 69 due to moderate browse cover, low decadency, and good perennial grass cover.

TREND ASSESSMENT
soil - stable (0)
browse - down (-2)
herbaceous understory - down (-2)
winter range condition (DC Index) - excellent (69) Lower Potential scale

2005 TREND ASSESSMENT

The trend for soil is slightly down. The ratio of protective ground cover (vegetation, litter and cryptogams) to bare ground decreased from 2.7:1 in 2000 to 2.3:1 in 2005. This is a product of a large increase in the relative cover of bare ground as well as a decrease in the relative cover of litter. The browse trend is slightly down. The density of the key browse species Wyoming big sagebrush decreased by 15% from 2,230 plants/acre in 2000 to 1,980 in 2005. This decrease in density was coupled with a substantial increase in the percentage of decadent individuals (from 8% in 2000 to 23% in 2005). As well, the number of plants classified as dying increased from 4% in 2000 to 16% in 2005. Young plants constituted 26% of the population, which is more than the number of plants classified as dying. The utilization on the sagebrush also increased from 36% of the population with moderate to high use to 52% with moderate to high use. The herbaceous understory trend is slightly down. The sum of the nested frequency of perennial grasses and perennial forbs decreased 12% and the percent cover of perennial grasses decreased slightly. This is likely a residual product of the drought which extended from 2000 to 2003 in this area. As well, cheatgrass was sampled for the first time in 2005. It only had a 4% quadrat frequency, but its increased presence could change the ecology of the site. The Desirable Components Index rated this site as excellent with a score of 68 due to moderate browse cover, moderate decadency, and good perennial grass cover.

TREND ASSESSMENT
soil - slightly down (-1)
browse - slightly down (-1)
herbaceous understory - slightly down (-1)
winter range condition (DC Index) - excellent (68) Lower Potential scale

HERBACEOUS TRENDS --
Management unit 17 , Study no: 51

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
G	Agropyron cristatum	172	165	136	156	3.85	7.93	8.34
G	Agropyron dasystachyum	$_{b}$152	$_{ab}$113	$_{b}$134	$_{a}$90	3.99	4.32	3.36
G	Agropyron intermedium	$_{a}$-	$_{d}$86	$_{c}$44	$_{b}$14	1.69	.93	.22
G	Bromus inermis	$_{c}$75	$_{b}$43	$_{ab}$24	$_{a}$3	.78	.83	.04
G	Bromus tectorum (a)	-	-	-	11	-	-	.08
G	Carex sp.	$_{a}$-	$_{c}$60	$_{c}$57	$_{b}$25	1.27	2.12	.40
G	Elymus junceus	$_{a}$-	$_{a}$6	$_{a}$3	$_{b}$18	.06	.15	1.43
G	Festuca ovina	$_{b}$32	$_{a}$3	$_{a}$-	$_{a}$5	.03	-	.04
G	Oryzopsis hymenoides	$_{ab}$46	$_{b}$67	$_{a}$21	$_{ab}$52	.86	.38	1.27
G	Poa secunda	$_{a}$-	$_{a}$4	$_{a}$1	$_{b}$15	.03	.00	.27
G	Sitanion hystrix	11	16	10	9	.13	.25	.08
G	Stipa comata	$_{a}$-	$_{b}$22	$_{b}$23	$_{b}$30	.22	.43	.65
Total for Annual Grasses		0	0	0	11	0	0	0.08
Total for Perennial Grasses		488	585	453	417	12.94	17.36	16.14
Total for Grasses		488	585	453	428	12.94	17.36	16.23
F	Agoseris glauca	-	-	3	-	-	.00	-
F	Antennaria rosea	-	-	1	-	-	.00	-
F	Astragalus convallarius	-	6	4	9	.06	.04	.07
F	Astragalus tenellus	$_{c}$91	$_{b}$23	$_{ab}$13	$_{a}$-	.28	.20	.03
F	Calochortus nuttallii	$_{a}$-	$_{b}$8	$_{a}$-	$_{ab}$5	.03	-	.04
F	Castilleja sp.	-	-	-	-	-	-	.03
F	Chenopodium fremontii (a)	-	$_{b}$13	$_{a}$-	$_{c}$25	.05	-	.22
F	Chenopodium leptophyllum(a)	-	3	-	5	.00	-	.02
F	Cirsium sp.	1	2	1	3	.01	.03	.01
F	Cordylanthus kingii (a)	-	$_{b}$25	$_{a}$-	$_{a}$5	.28	-	.01
F	Cryptantha sp.	-	-	3	3	-	.03	.01
F	Cymopterus sp.	-	4	-	2	.01	-	.01
F	Descurainia pinnata (a)	-	2	-	2	.01	-	.00
F	Erigeron sp.	3	7	8	1	.04	.06	.00
F	Hedysarum boreale	-	-	4	-	-	.09	-
F	Lappula occidentalis (a)	-	$_{b}$18	$_{a}$-	$_{b}$25	.08	-	.31
F	Machaeranthera canescens	$_{b}$21	$_{ab}$7	$_{a}$3	$_{ab}$10	.06	.04	.07
F	Machaeranthera grindelioides	$_{b}$8	$_{a}$-	$_{ab}$1	$_{a}$-	.00	.00	-
F	Medicago sativa	$_{c}$58	$_{b}$28	$_{ab}$25	$_{a}$7	1.70	.56	.30
F	Penstemon humilis	$_{a}$-	$_{bc}$8	$_{c}$15	$_{ab}$2	.07	.20	.06

Type	Species	Nested Frequency				Average Cover %		
		'88	'95	'00	'05	'95	'00	'05
F	Penstemon sp.	-	4	-	-	.00	-	-
F	Phlox hoodii	$_{ab}$8	$_{b}$14	$_{b}$19	$_{a}$-	.61	.43	-
F	Phlox longifolia	-	1	-	-	.00	-	-
F	Polygonum douglasii (a)	-	$_{b}$10	$_{a}$-	$_{ab}$8	.03	-	.02
F	Schoencrambe linifolia	3	3	-	-	.00	-	-
F	Senecio multilobatus	3	-	-	4	-	-	.03
F	Sisymbrium altissimum (a)	-	2	-	6	.00	-	.04
F	Sphaeralcea coccinea	$_{a}$24	$_{b}$73	$_{b}$61	$_{b}$64	.85	.37	1.20
F	Taraxacum officinale	-	4	-	-	.01	-	-
F	Tragopogon dubius	1	-	-	-	-	-	-
F	Trifolium gymnocarpon	$_{a}$-	$_{b}$12	$_{a}$-	$_{ab}$11	.22	-	.19
F	Unknown forb-perennial	4	-	-	-	-	-	-
Total for Annual Forbs		0	73	0	76	0.47	0	0.63
Total for Perennial Forbs		225	204	161	121	4.00	2.08	2.08
Total for Forbs		225	277	161	197	4.48	2.08	2.71

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 17 , Study no: 51

Type	Species	Strip Frequency			Average Cover %		
		'95	'00	'05	'95	'00	'05
B	Artemisia tridentata wyomingensis	74	56	47	9.66	8.36	8.59
B	Atriplex canescens	0	1	1	-	-	.38
B	Chrysothamnus depressus	3	6	1	.16	.21	.15
B	Chrysothamnus nauseosus graveolens	0	4	0	-	.15	-
B	Chrysothamnus nauseosus hololeucus	35	11	11	1.16	.06	.41
B	Chrysothamnus parryi	0	19	22	-	1.02	1.28
B	Chrysothamnus viscidiflorus viscidiflorus	4	2	4	-	-	.03
B	Eriogonum corymbosum	3	2	3	.15	.15	-
B	Gutierrezia sarothrae	13	15	1	.24	.24	-
B	Juniperus osteosperma	0	4	4	-	.03	.18
B	Leptodactylon pungens	4	3	3	.15	.15	.00
B	Opuntia sp.	6	8	5	.00	.18	.15
B	Pediocactus simpsonii	1	0	1	.00	-	.03
B	Pinus edulis	0	3	3	-	-	.03
Total for Browse		143	134	106	11.54	10.57	11.24

CANOPY COVER, LINE INTERCEPT --
Management unit 17 , Study no: 51

Species	Percent Cover '05
Artemisia tridentata wyomingensis	8.36
Atriplex canescens	.18
Chrysothamnus nauseosus hololeucus	.43
Chrysothamnus parryi	.95
Eriogonum corymbosum	.25
Juniperus osteosperma	.31
Opuntia sp.	.03
Pinus edulis	.31

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 17 , Study no: 51

Species	Average leader growth (in) '05
Artemisia tridentata wyomingensis	3.2

POINT-QUARTER TREE DATA --
Management unit 17 , Study no: 51

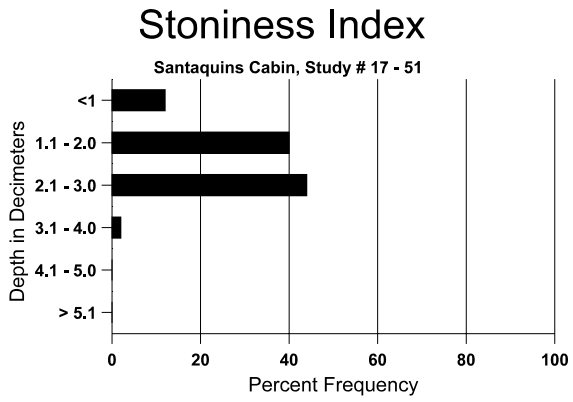
Species	Trees per Acre '00	Trees per Acre '05	Average diameter (in) '00	Average diameter (in) '05
Juniperus osteosperma	18	34	2.1	3.7
Pinus edulis	36	27	1.5	2.3

BASIC COVER --
Management unit 17 , Study no: 51

Cover Type	Average Cover % '82	'88	'95	'00	'05
Vegetation	8.50	2.25	29.18	35.20	28.07
Rock	0	.25	.04	.02	0
Pavement	0	0	.14	.80	.12
Litter	56.00	55.75	44.87	59.80	33.79
Cryptogams	0	0	1.22	1.00	1.16
Bare Ground	35.50	41.75	27.60	32.01	49.23

SOIL ANALYSIS DATA --
Herd Unit 17, Study # 51, Study Name: Santaquins Cabin

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	ppm P	ppm K	dS/m
11.6	55.6 (12.8)	737	49.6	27.1	23.3	3.0	3.3	134.4	0.8



PELLET GROUP DATA --
Management unit 17 , Study no: 51

Type	Quadrat Frequency		
	'95	'00	'05
Rabbit	18	24	27
Elk	6	2	28
Deer	47	55	37
Cattle	-	4	1

Days use per acre (ha)	
'00	'05
-	-
4 (10)	52 (127)
139 (343)	60 (149)
9 (22)	6 (14)

BROWSE CHARACTERISTICS --
Management unit 17 , Study no: 51

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Artemisia tridentata wyomingensis												
82	**5666**	5533	2866	2800	-	-	13	4	0	-	0	20/20
88	**4399**	-	2133	1866	400	-	55	23	9	-	11	22/23
95	**3040**	20	520	2300	220	320	42	16	7	2	2	33/38
00	**2320**	120	440	1700	180	240	32	4	8	4	4	18/24
05	**1980**	3280	520	1000	460	400	20	32	23	16	20	25/30
Atriplex canescens												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**20**	-	-	20	-	-	0	0	-	-	0	32/32
05	**20**	-	-	20	-	-	0	100	-	-	0	31/34
Ceratoides lanata												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**0**	-	-	-	-	-	0	0	-	-	0	-/-
05	**0**	-	-	-	-	-	0	0	-	-	0	18/22
Chrysothamnus depressus												
82	**0**	-	-	-	-	-	0	0	0	-	0	-/-
88	**0**	-	-	-	-	-	0	0	0	-	0	-/-
95	**300**	-	-	300	-	-	0	0	0	-	0	6/15
00	**260**	-	-	240	20	-	38	15	8	-	0	1/5
05	**20**	-	-	20	-	-	0	0	0	-	0	-/-

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Chrysothamnus nauseosus graveolens												
82	**0**	-	-	-	-	-	0	0	0	-	0	-/-
88	**0**	-	-	-	-	-	0	0	0	-	0	-/-
95	**0**	-	-	-	-	-	0	0	0	-	0	-/-
00	**80**	-	-	40	40	-	0	0	50	25	25	23/23
05	**0**	-	-	-	-	-	0	0	0	-	0	17/24
Chrysothamnus nauseosus hololeucus												
82	**0**	-	-	-	-	-	0	0	0	-	0	-/-
88	**200**	-	200	-	-	-	0	33	0	-	33	-/-
95	**2380**	-	220	2160	-	-	0	0	0	-	0	14/14
00	**260**	-	80	180	-	-	8	0	0	-	15	17/18
05	**240**	-	80	120	40	-	8	25	17	17	17	18/20
Chrysothamnus parryi												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**1880**	-	40	1840	-	-	43	1	-	-	0	5/8
05	**1060**	220	140	920	-	20	0	6	-	-	0	7/10
Chrysothamnus viscidiflorus viscidiflorus												
82	**66**	-	-	66	-	-	0	0	0	-	0	6/10
88	**0**	-	-	-	-	-	0	0	0	-	0	-/-
95	**80**	-	20	60	-	-	0	0	0	-	0	11/15
00	**40**	-	-	20	20	-	0	0	50	50	50	-/-
05	**160**	20	-	160	-	-	0	0	0	-	0	10/13
Eriogonum corymbosum												
82	**66**	-	-	66	-	-	0	0	-	-	0	15/16
88	**66**	-	-	66	-	-	0	0	-	-	0	15/13
95	**80**	-	20	60	-	-	0	0	-	-	0	16/30
00	**60**	-	-	60	-	-	0	0	-	-	0	16/20
05	**60**	-	20	40	-	20	33	33	-	-	0	13/18
Gutierrezia sarothrae												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**200**	-	-	200	-	-	0	0	-	-	0	6/9
95	**680**	-	40	640	-	-	0	0	-	-	0	9/11
00	**860**	-	20	840	-	20	0	0	-	-	0	4/6
05	**120**	20	-	120	-	-	0	0	-	-	0	7/12

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Juniperus osteosperma												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**66**	-	66	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**80**	-	60	20	-	-	0	0	-	-	0	-/-
05	**100**	-	60	40	-	-	0	0	-	-	0	-/-
Leptodactylon pungens												
82	**533**	-	-	533	-	-	0	0	-	-	0	2/7
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**160**	-	-	160	-	-	0	0	-	-	0	6/7
00	**240**	-	-	240	-	-	0	0	-	-	0	3/6
05	**100**	20	20	80	-	-	0	0	-	-	0	2/8
Opuntia sp.												
82	**933**	-	-	933	-	-	0	0	0	-	0	3/13
88	**1533**	-	133	1400	-	-	0	0	0	-	0	3/4
95	**120**	-	-	120	-	-	0	0	0	-	0	6/14
00	**220**	-	60	140	20	-	0	0	9	-	0	4/12
05	**140**	-	20	120	-	20	0	0	0	-	0	4/12
Pediocactus simpsonii												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**20**	-	-	20	-	-	0	0	-	-	0	1/2
00	**0**	-	-	-	-	-	0	0	-	-	0	-/-
05	**20**	-	-	20	-	-	0	0	-	-	0	1/2
Pinus edulis												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**66**	-	66	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	-/-
00	**60**	-	60	-	-	-	0	0	-	-	0	-/-
05	**60**	-	40	20	-	-	0	0	-	-	0	-/-
Tetradymia canescens												
82	**0**	-	-	-	-	-	0	0	-	-	0	-/-
88	**0**	-	-	-	-	-	0	0	-	-	0	-/-
95	**0**	-	-	-	-	-	0	0	-	-	0	14/12
00	**0**	-	-	-	-	-	0	0	-	-	0	-/-
05	**0**	-	-	-	-	-	0	0	-	-	0	-/-